



State of Idaho
DEPARTMENT OF WATER RESOURCES
WESTERN REGION, 450 W. State Street, Boise, Idaho

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A M E N D E D
Administrator's Memorandum No. 19

Operations Bureau

TO: Regional Offices and Water Allocation Section
FROM: Norman C. Young *NCY*
DATE: March 14, 1983
RE: Evaluating Water Needs for Irrigation Purposes

The Department occasionally receives applications for permit to appropriate flows in excess of .02 cfs per acre for irrigating purposes. A method of evaluating these requests has been developed by the Local Support Section of the Project Studies Bureau. A copy of the methodology is attached. The Local Support Section will evaluate the application on an individual basis as a step in the state office portion of the staff review.

Information required for evaluating excessive flows is tabulated on the attached fact sheet. The sheet should be completed and submitted to the Local Support Section with the applications in this category.

When evaluating applications for excessive flows, the common Best Practical Method (BPM) for an irrigation system common or readily adaptable to the area should be used as a standard in determining the flow required to properly irrigate the proposed site. This BPM will neither be the most efficient possible method, which may be economically prohibitive, nor will it necessarily be the existing local-custom technique of irrigation. One of this agency's purposes is to further the efficient use of the water resources in the state.

September 27, 1982

WATER NEEDS EVALUATION

The evaluation by the Local Support Section (IDWR) of water needs for irrigation in Idaho is determined from site-specific data and criteria developed and published for planning and design use. This relates to the water holding capacity of the soils, field slopes, consumptive use requirements of the crop (which accounts for climatic conditions), and the method of irrigation. Soils data is obtained from soils maps (normally SCS) or from field studies. Consumptive use requirements are obtained from the Soil Conservation Service Irrigation Guide for Idaho, University of Idaho Bulletin No. 516 entitled, "Consumptive Irrigation Requirements for Crops in Idaho", and from SCS Technical Bulletin No. 21.

The method of irrigation in relationship to the type of soils and field slope determine the field application efficiencies to be expected with an expected level of water management. These recommended efficiencies are in the SCS Irrigation Guide.

The soil profile within the root zone of the crop serves as a storage tank that supplies water to the plant. It is necessary that irrigation applications are made frequent enough and in the amount needed to replenish the soil moisture before an allowable percentage of the available moisture in the soil is depleted. Depletions beyond this are harmful to the crop.

The amount of moisture needed to refill the soil profile, the frequency required for this refilling, and the efficiency at which this refilling takes place determines the stream size or flow requirements needed for the irrigation of lands under a system. Unless soil leaching is needed, water used in excess of crop needs is harmful to the crop and wasteful.

Because of varying soils, crops, and climatic conditions, it is necessary to evaluate each system individually to determine the water needed and put to beneficial use.

The following referenced sources are used in making this evaluation:

I. Consumptive Irrigation Requirement

A. Peak Monthly C.U. (two sources compared - U of I Bulletin used most often)

a. U of I Bulletin No. 516 - The 80% chance of occurrence is used in determining peak design need.

b. SCS Irrigation Guide for Idaho

B. Peak Period Daily C.U.

Table 5, SCS Technical Release No. 21

II. Available Water in Crop Root Zone

This determination is made from soil profile data obtained from soil survey maps or from actual field testing.

III. Moisture Withdrawal

The moisture withdrawal from the available moisture in the crop root zone shall not exceed 67% for least sensitive crops. This may be limited to 50% for some crops, such as potatoes.

IV. Irrigation Efficiencies

Physical conditions such as soil intake rate, field slope, topograph, average wind velocities, depth of application, and length of run, affect irrigation efficiencies. The efficiencies recommended in the SCS irrigation guide are used in determining peak flow requirements for the specified kind of irrigation system used for applications of water.

For the adjudication of existing water rights, the existing or, if improvements have not been made, historical methods and practices of irrigating the lands involved as well as those used for surrounding lands will be taken into consideration in determining irrigation efficiencies for peak flow requirements.

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ADMINISTRATOR'S MEMORANDUM

TO: Regional Offices and Water Allocation Section

FROM: Norman C. Young *NCE*

DATE: January 28, 1980

RE: Excessive Flows for Irrigation Purposes

Recently the Department has received several applications for permit to appropriate flows in excess of .02 cfs per acre for irrigation purposes. A method of evaluating these requests has been developed by the Local Support Section of the Project Studies Bureau. This section will evaluate the applications on an individual basis as a step in the state office portion of the staff review.

Information required for evaluation of excessive flows is tabulated on the attached fact sheet. The sheet should be completed and submitted with applications in this category.

Ident. No. _____

FACT SHEET
for
Excessive Irrigation Flows

This information is to be submitted with any application for permit for which the irrigation rate of flow requested is more than .02 cfs per acre. One exception is that .03 cfs per acre is allowed for up to five (5) acres.

Soil type and soil profile: _____

Soil water holding capacity: _____

Soil intake family (if known): _____

Field slope: _____

Anticipated crops: _____

Method of irrigation: _____

Remarks _____
